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K. Chad Burgess
Senior Counsel

chad.burgess@scana.com

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April 24, 2007

COPY
Posted: tod
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VIA HAND DELIVERY
The Honorable Charles Terreni
Chief Clerk/Administrator
South Carolina Public Service Commission
101 Executive Center Drive (29210)
Post Office Drawer 11649
Columbia, South Carolina 29211

RE: Petition of the Office of Regulatory Staff to Establish Dockets to Consider Implementing the Requirements of Section 1251 (Net Metering) of the Energy Policy Act of 2005
Docket No. 2005-385-E

Dear Mr. Terreni:

Enclosed for filing on behalf of South Carolina Electric & Gas Company, Progress Energy Carolinas, Incorporated, and Duke Energy Corporation, is the direct testimony of Dr. Julius A. Wright. Please accept the original and twenty-five (25) copies of this testimony for filing. Additionally, please acknowledge your receipt of this document by file-stamping the extra copy that is enclosed and returning it to me via our courier.

By copy of this letter, we are serving all other parties of record with a copy of the enclosed direct testimony and attach a certificate of service to that effect.

If you have any questions regarding this matter, please do not hesitate to contact me.

Very truly yours,

K. Chad Burgess

K. Chad Burgess

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KCB/kms
Enclosures
cc: Nanette S. Edwards, Esquire
Shannon Bowyer, Hudson, Esquire
(All via hand delivery w/enclosures)

Pamela Greenlaw
John F. Hardaway, Esquire
Len S. Anthony, Esquire
Ruth Thomas
Catherine Heigel, Esquire
Mel Jenkins
(All via first-class mail w/enclosures)

RETURN DATE: 4/24/07 ok
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BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2005-385-E

Petition of the Office of Regulatory Staff to Establish Dockets to Consider Implementing the Requirements of Section 1251 (Net Metering) of the Energy Policy Act of 2005	)))))	**CERTIFICATE OF SERVICE**

This is the certify that I have caused to be served this day five (5) copies of the **Direct Testimony of Dr. Julius A. Wright** via hand delivery to the persons named below at the addresses set forth:

Nanette S. Edwards, Esquire
Shannon Bowyer Hudson, Esquire
Office of Regulatory Staff
1441 Main Street, Suite 300
Columbia, South Carolina 29201

Karen M. Scruggs
Karen M. Scruggs

Columbia, South Carolina
This 24th day of April 2007

BEFORE THE

PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2005-385-E

Petition of the Office of Regulatory Staff to Establish Dockets to Consider Implementing the Requirements of Section 1251 (Net Metering) of the Energy Policy Act of 2005	)))))	**CERTIFICATE OF SERVICE**

This is the certify that I have caused to be served this day one (1) copy of the **Direct Testimony of Dr. Julius A. Wright** via U.S. Mail to the persons named below at the addresses set forth:

Len S. Anthony, Esquire
Progress Energy Carolinas, Inc.
PO Box 1551
Raleigh, NC 27602

Catherine E. Heigel, Esquire
Duke Energy Corporation
PO Box 1006, EC03T
Charlotte, NC 28201-1066

John F. Hardaway, Esquire
1338 Pickens Street
Columbia, SC 29201

Pamela Greenlaw
1001 Wotan Road
Columbia, SC 29229

Ruth Thomas
1339 Sinkler Road
Columbia, SC 29206

Mel Jenkins
3324 Montgomery Avenue
Columbia, SC 29205

Karen M. Scruggs
Karen M. Scruggs

Columbia, South Carolina
This 24th day of April 2007

BEFORE THE PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

Docket No. 2005-385-E

In Re:	)
	)
In the Matter of Considering	)
Implementation of The Requirements	)
Of Section 1251 (Net Metering) of	)
The Energy Policy Act of 2005	)

DIRECT TESTIMONY OF
JULIUS A. WRIGHT, Ph.D.

April 24, 2007

DIRECT TESTIMONY OF
JULIUS A. WRIGHT, Ph.D.

ON BEHALF OF SOUTH CAROLINA ELECTRIC & GAS COMPANY, DUKE ENERGY CAROLINAS AND PROGRESS ENERGY CAROLINAS

PSCSC DOCKET No. 2005-385-E

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. My name is Julius A. Wright, President, J. A. Wright & Associates, LLC, 3037 Loridan Way, Atlanta, Georgia 30339.

Q. FOR WHOM ARE YOU PRESENTING TESTIMONY IN THIS DOCKET?

A. I am presenting testimony on behalf of South Carolina Electric & Gas Company, ("SCE&G"), Duke Energy Carolinas, LLC ("Duke") and Carolina Power and Light Company, d/b/a Progress Energy Carolinas, Inc. ("Progress") or collectively referred to as the "Companies".

Q. PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I received a Bachelor of Science degree in Chemistry from Valdosta State College in 1974. I later earned an MBA in Finance from Georgia State University in Atlanta, Georgia, a Masters and Ph.D. in Economics from North Carolina State University, where I focused on regulatory and environmental economics. I have completed the Michigan State Regulatory Course, several NARUC courses on regulation, and various management and investment seminars.

I am the President of J. A. Wright & Associates, LLC. Prior to starting my practice, I was a Client Partner for AT&T Solutions, Utilities and Energy Practice. Before that affiliation, I was a Utility Consultant for three years with EDS. Prior to that I was a Commissioner on the North Carolina Utilities Commission. I also served three terms in the North Carolina State Senate. During the time that I was a Senator, I was also a Senior Process Engineer with Corning Glass in its Fiber Optic Division. Prior to my work at Corning, I worked for four years in the chemical industry, first as a Process Chemist and later as a Senior Project Engineer.

In the course of my consulting work, I have addressed various regulatory issues, including: integrated resource planning; regulatory strategies for dealing with the transition to competitive electric and telecommunications markets; issues related to potentially strandable costs; prudence reviews; avoided cost determinations; rate forecasting; gas integrated resource planning; and, electric utility telecommunications strategies.

From 1985 to 1993, in my role as a commissioner on the North Carolina Utilities

Commission I was involved in numerous electric, gas, telecommunications, and water utility issues and decisions. My detailed resume is provided as Exhibit JAW-1.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address certain issues raised by the Public Service Commission of South Carolina (the "Commission") in its November 13, 2006, Order Setting Deadline For Written Comments in this docket, and later in its March 15, 2007 letter directing that written testimony be filed regarding issues raised by the Energy Policy Act of 2005, ("EPA 2005"). Specifically, this hearing is to consider whether or not it is appropriate to adopt fuel source, fossil fuel generation efficiency planning, and net metering standards set forth in EPA 2005.

Q. WHAT ARE YOUR RECOMMENDATIONS WITH REGARD TO THE SPECIFIC ISSUES BEING ADDRESSED IN THIS PROCEEDING?

A. I recommend that the Commission find that it and these Companies have for some time been operating under existing statutes and rules related to fuel source and fossil fuel generation efficiency planning that are comparable to or more comprehensive than the standards proposed in EPA 2005. In addition, based on this conclusion, I recommend that the Commission find that the EPA 2005 standards are unnecessary and decline to adopt the proposals offered as amendments to the Public Utility Regulatory Policies Act of 1978 ("PURPA"). As I will discuss later in my testimony, this is similar to what this

Commission found regarding some of the earlier PURPA standards. With respect to the net metering standard, I recommend that the Commission adopt the net metering program or tariff proposal discussed in my testimony and offered by the Companies that is similar to net metering tariffs found in other states. I would add that my recommendations mirror the recommendations of the witness for the Office of Regulatory Staff ("ORS"), Mr. Randy Watts.

II. BACKGROUND

Q. CAN YOU PROVIDE A HISTORICAL PERSPECTIVE ON THE INITIATION OF THIS PROCEEDING?

A. Yes. The genesis of the current docket actually grew out of federal legislation and national energy initiatives begun in the 1970s. In 1978, the United States Congress passed PURPA, the basic purpose of which was to foster conservation of electricity, promote more efficient production of electricity, and to encourage among state utility regulators more consistent, and what many have termed, more equitable cost-based electric rate tariffs.[1] In promoting these goals, Title I of this 1978 law contained several standards to be considered, but not required to be adopted, by state regulatory commissions. These standards addressed

[1] For example, see Bonbright, J. C, et. al., "Principles of Public Utility Rates," Public Utility Reports, Inc., Arlington, VA., 2nd Edition, 1988, pp 416, 477; Phillips, Charles, "The Regulation of Public Utilities," Public Utility Reports, Inc., Arlington, VA., 3rd Edition, 1993, pp 655-661.

such issues as (1) cost of service; (2) declining block rates; (3) time-of-use rates; (4) seasonal rates; (5) interruptible rates; and, (6) load management techniques.[2]

It is important to note that the adoption by state utility commissions of these new standards was optional, as clearly seen in the specific language of the law which stated, "each state regulatory authority (with respect to each electric utility for which it has ratemaking authority) and each nonregulated electric utility shall consider each standard" and then "make a determination concerning whether or not it is appropriate to implement such standard" (16 U.S.C. § 2621 (a) or PURPA SECTION 111, see Exhibit JAW-3). This same section of PURPA also indicated that "nothing in this subsection prohibits any state regulatory authority or nonregulated electric utility from making any determination that it is not appropriate to implement any such standard."

In EPA 2005 there is a "prior state action" (Section 1251(d), Exhibit JAW-2) provision that permits states to consider prior actions that might have addressed the same issues and "grandfather" such actions in lieu of conducting an evidentiary hearing to address such standards. Regardless of the action taken, States were required by the law to specify in writing the reasons for their decisions. PURPA was amended by the Energy Policy Act of 1992 which added several additional standards to be considered. The issues in this docket have been generated by another amendment to PURPA contained in EPA 2005.

[2] It should be noted that this 1978 PURPA law may be best known for its Title II, which encouraged increased use of cogeneration and small power producers.

Q. PLEASE EXPLAIN THE AMENDMENTS TO PURPA FROM EPA 2005 WHICH ARE THE BASIS OF THIS PROCEEDING.

A. EPA 2005 amended PURPA requiring state regulatory authorities, with respect to electric utilities, to consider whether or not to adopt several new electric energy efficiency standards. States could also be "grandfathered in" with respect to the proposed standards. Three of these standards are the focus of this proceeding:

- fuel diversity,
- fossil fuel generation efficiency, and
- net metering.

The statutory text of the specific PURPA amendments addressed in this proceeding is set forth in Exhibit JAW-2.

Q. WITH RESPECT TO THE ISSUES INVOLVED IN THIS HEARING, WHAT SPECIFIC ACTION IS BEING REQUIRED OF STATE REGULATORS?

A. Specifically, EPA 2005 requires that state regulatory commissions have a set period of time to begin consideration of the proposed new PURPA standards and an additional period of time in which they must complete their consideration and make a determination as to whether or not to adopt the standards. In addition, Section 111(b) of PURPA (see Exhibit JAW-3) requires state regulatory bodies to adhere to certain procedural guidelines in their consideration of the new standards. These procedural guidelines include the requirement that the regulatory body's determination be made after public notice and a hearing, and that such determination be "based upon findings included in such determination and upon the evidence presented at the hearing." Moreover, if regulatory commissions decline to implement any of the proposed standards they must do so by specifying their decision and reasoning in writing (see Exhibit JAW-3, PURPA section 111(c)). The current proceeding and any subsequent Commission Order should fully satisfy these procedural requirements.

Q. YOU MENTIONED STATES HAD A SET PERIOD OF TIME FOR RESPONDING TO THE THREE ISSUES THAT ARE THE SUBJECT OF THIS PROCEEDING. WHAT ARE THOSE TIMING DEADLINES?

A. Based on the enactment date of August 8, 2005, I conclude that state commissions have two years, until August 8, 2007 to begin consideration of the proposals and three years, until August 8, 2008 to complete their deliberations and issue an order as whether or not to adopt these three proposed standards.

Q. PLEASE BRIEFLY DISCUSS HOW STATES RESPONDED TO THE EARLIER REQUIREMENTS OF PURPA.

A. Several of the energy efficiency standards contained in the original PURPA in 1978 were adopted by state utility commissions. However, some standards were not adopted and after hearings, some states determined that they had already examined these issues and adopted comparable standards prior to the enactment of PURPA. In South Carolina, this

Commission in Docket No. 79-300-E, Order No. 80-474, Section XI, August 29, 1980, found that Duke had adopted programs and tariffs essentially equivalent to PURPA's proposed standards on declining block rates, time-of-use rates, seasonal rates, and load management. In this same Order the Commission declined to adopt the proposed lifeline rate. Consequently, this Commission, in evaluating earlier standards under PURPA, has both rejected certain proposed standards, or in the alternative, concluded that the Commission and utilities had already undertaken activities essentially comparable to the proposed PURPA standards.

Q. YOU EARLIER MENTIONED THE IDEA THAT STATES COULD BE "GRANDFATHERED" IN WITH RESPECT TO COMPLYING WITH PURPA STANDARDS. PLEASE DISCUSS WHAT YOU MEAN BY THIS STATEMENT.

A. Grandfathering in this context means a State has already adopted or considered the adoption of comparable standards and therefore would not need to conduct a hearing to consider such standards. Referring to Exhibit JAW-2, with respect to the net metering, fuel source and fossil fuel generating efficiency standards, a state is in compliance with EPA 2005 (see Section 1251 (3(d)) in EPA 2005) if:

- "the State has implemented for such utility the standard concerned (or a comparable standard);
- the State regulatory authority for such State or relevant nonregulated electric utility has conducted a proceeding to consider implementation of the standard concerned (or a comparable standard) for such utility;

- or the State legislature has voted on the implementation of such standard (or a comparable standard) for such utility."

If the above conditions have been met, then the obligation for a state regulatory body to hold a hearing and adopt the proposed new standard is waived. Based on my knowledge and understanding of electric utility operations and regulation in South Carolina, I believe that the State and this Commission, for a number of years, have operated with fuel diversity and fossil fuel generator efficiency standards at least comparable, if not exceeding these two EPA 2005 proposed standards. In so doing, the Commission, and likewise the Companies, are already in compliance with these generation-based standards and the Commission would not even be required to conduct a hearing on these issues, albeit the current proceeding meets the procedural guidelines regarding a hearing established by EPA 2005.

III. GENERATION FUEL SOURCES

Q. WHAT IS BEING REQUIRED OF STATE REGULATORS WITH RESPECT TO THE ISSUE OF GENERATION FUEL SOURCES?

A. Specifically, the new standard requires that "each electric utility shall develop a plan to minimize dependence on one fuel source and to ensure that the electric energy it sells to consumers is generated using a diverse range of fuels and technologies, including renewable technologies" (Section 1251(12), Exhibit JAW-2).

Q. THE ACT DISCUSSES "USING A DIVERSE RANGE OF FUELS AND TECHNOLOGIES." CAN YOU DEFINE THIS TERM?

A. Fuel diversity has been defined by Costello[3] as a fleet of generation sources "deploying a mix of electric generation technologies with different fuel sources." This is exactly how EPA 2005 defines generation fuel diversity although it specifically identifies and includes renewable technologies as part of a diverse fuel and technology mix.

Q. WHAT IS THE POLICY OF THIS STATE AND COMMISSION WITH RESPECT TO FUEL SOURCE DIVERSITY?

A. South Carolina Code Ann. § 58-33-430 requires the Companies to file an annual plan with a ten-year forecast of the demand and the energy resources that each Company is proposing to meet that forecast demand. This is usually filed in conjunction with an Integrated Resource Plan ("IRP") required by § 58-37-40 which requires that electric utilities file a fifteen year resource plan. This IRP must include the electric utilities' plans for meeting their future energy demand "in an economic and reliable manner, including both demand-side [which is specifically defined to include cogeneration and renewable energy resources] and supply-side options." Pursuant to § 58-37-20, the Commission is encouraged to adopt policies that promote alternative energy supply options including conservation, cogeneration and renewable resources. Taken together, these specific generation planning policies of the State direct the Commission and these Companies to undertake long range, ten plus year resource planning procedures, that consider a range of fuel and technology alternatives, including renewables, in planning future electric supply options.

Q. ARE THERE ANY ADDITIONAL STATE POLICIES WHICH CAN ADDRESS FUEL SOURCE DIVERSITY?

A. Yes. Section 58-33-110, requires electric utilities to acquire a Certificate of Public Convenience and Necessity ("Siting Certificate") prior to constructing a new generation facility. Section 58-33-160 requires the Commission to find in any Siting Certificate for construction for a generating facility that, among other things:

- "the basis of the need for the facility,"
- the environmental impact considering the "state of available technology and the nature and economics of the various alternatives and other pertinent considerations,"
- that the "facilities will serve the interests of system economy and reliability," and
- that the "public convenience and necessity require the construction of the facility."

Thus, the overarching public policy of the state is for electric utilities to prove the need for any new generation facility, and include in that proof that the utility has considered a mix of generation resources (both fuel and technology), environmental impacts, efficiency and reliability, and that the facility is necessary in providing the citizens of the State adequate and reliable electric service from an efficient mix of resources.

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[3] Costello, Ken, "A Perspective on Fuel Diversity," The Electricity Journal. Volume 18, Issue 4, May, 2005,

Q. HOW HAS THE COMMISSION CARRIED OUT THESE OVERALL ELECTRIC ENERGY RESOURCE PLANNING POLICIES?

A. In response to these basic policy objectives, this Commission has been actively involved in both the planning and approval of electric generation resources, and it has consistently recognized the need for a diverse range of generation and alternative technologies. With respect to long-term planning of resources, as I indicated earlier, § 58-33-430 requires the Companies to file an annual plan with a ten-year forecast of the demand for electricity as compared to the energy resources each Company is proposing to meet that forecast demand.

In addition, § 58-37-40 requires the Companies to file with the Commission, every three years and updated annually, an IRP that covers the next fifteen years. In this IRP the Companies are required by statute and by Commission IRP filing requirements to consider a wide range of energy options, both demand-side and supply-side. This annual report and the IRP are both reviewed by the Commission and the Office of Regulatory Staff ("ORS") to ensure the State maintains an adequacy of reliable, efficient, cost effective energy supply "meeting the requirements shown in its forecast [the particular Company's IRP forecast] in an economic and reliable manner, including both demand-side and supply-side options" (Docket No. 87-223-E, Order No. 98-502, July 2, 1998). This current IRP requirement indicates that a variety of resource options should be considered. Earlier IRP Orders discussed the need to ensure that utilities had a resource mix that was reliable and cost effective "while maintaining system flexibility and considering environmental impacts"

pp 28-47.

(Docket No.87-223-E, Order No. 91-885, October 21, 1981, Appendix A, IRP Objective). The term "system flexibility" and the consideration of a wide range of energy resource options is clearly an indication that multiple fuel sources have been a consideration in South Carolina electric generation planning for at least the past two decades.

Q. HOW DO THESE UTILITIES INCORPORATE THIS GOAL OF GENERATION FUEL DIVERSITY INTO THEIR GENERATION PLANNING PROCESS?

A. The Companies' generation resource planning processes are actually ongoing processes presented formally to the Commission in the resource planning filings mentioned above. These filings contain a description of each Company's resource plan as well as the overall planning process. This planning process revolves around the use of sophisticated models that identify the least cost mix of generating resources that could be used to supply future electric demand given a variety of constraints, reliability concerns, and recognition of the need for a diverse mix of fuels and technologies. The Commission Staff, Commissioners, the ORS, and other intervenors review these filings.

Q. PLEASE DISCUSS SOME OF THE CONSTRAINTS THAT MUST BE CONSIDERED WHEN PLANNING GENERATING RESOURCES.

A. When utilities are considering future electric generating resource options, including purchase power or demand–side alternatives, they have a number of constraints that must be considered beyond simple fuel diversity. As a first principle, a basic overriding constraint placed upon resource planning is that any plan must be consistent a primary IRP policy objective of a "least cost" resource mix, given a variety of considerations, including reliability and environmental considerations. For example, the initial IRP policy established by the Commission (Docket No. 87-223-E, Order No. 91-885, October 21, 1991, Appendix A) stated:

> "The objective of the IRP process is the development of a plan that results in the minimization of the long run total costs of the utility's overall system and produces the least cost to the consumer consistent with the availability of an adequate and reliable supply of electricity while maintaining system flexibility and considering environmental impacts."

In today's IRP process, which has been streamlined from the earlier years, there is still the requirement that a Company's resource plan must meet "the requirements shown in its forecast in an economic and reliable manner, including both demand-side and supply-side options" and it must provide information related to the "environmental and economic consequences of the plan" (Docket No. 87-223-E, Order No. 98-502, July 2, 1998).

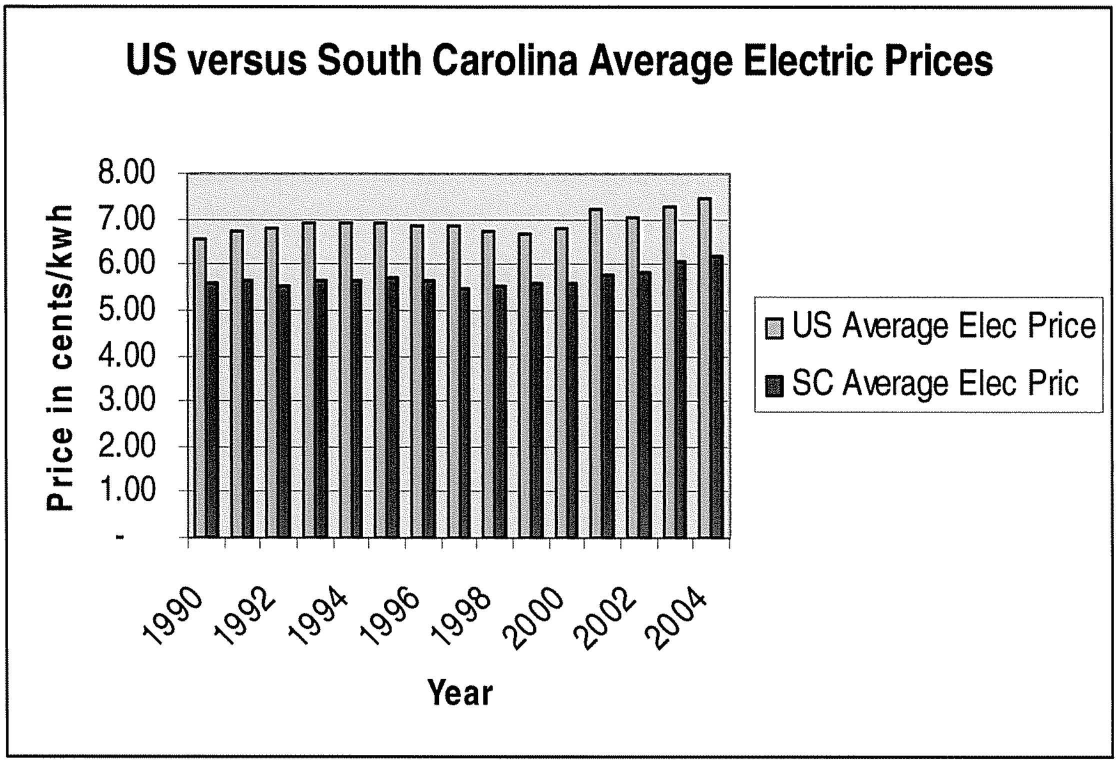
Consequently, any electric resource plan proposed by a utility is constrained by and must adhere to a basic requirement that it be economic or essentially "least cost" given relevant considerations. In evaluating generation or demand-side resources, other cost and risk factors that must be considered include fuel cost, fuel supply risks, capital costs, interest rate costs, environmental compliance costs and risks, siting costs and risks, and a number of additional factors. Perhaps the most important cost and risk factor to consider in the planning process is the reliability requirement that electric utilities must meet. In addition, a utility's resource plan is constrained by the fact that its generation resources must meet the characteristics of its future load requirements, such as a peaking unit or baseload unit, each of which can dictate a different fuel option. Due to the fact that many of these constraints are difficult or impossible to quantify, this means that any final generation resource plan will have an element of subjectivity, thus making the adoption of a strict, prescriptive, quantifiable fuel diversity standard impractical at best, and contrary to the public interest at worst.

Q. BEYOND THIS ANNUAL REPORT AND IRP FILING, ARE THERE ANY ADDITIONAL ACTIVITIES THIS COMMISSION UNDERTAKES TO ENSURE THE STATE'S ELECTRIC UTILITIES HAVE, AND MAINTAIN, A PROPER AND DIVESRE MIX OF ELECTRIC GENERATION FUEL SOURCES?

A. The utilities have a statutory requirement, § 58-33-110 & 120, and Commission Rule 103-304, to file for a Siting Certificate for any new generating facility, and this filing allows the Commission to consider the issue of fuel and resource mix. The utilities are also required by § 58-27-865 to file monthly fuel reports and the Commission conducts annual fuel adjustment proceedings, each requiring the utilities to file a significant amount of information related to generation operating efficiency, fuel usage, and fuel costs. These reports and filings keep the Commission aware of the current generation fuel mix and generation operations with respect to meeting current demand. Importantly, the fuel adjustment proceedings also allow the Commission to review the fuel purchasing practices of the utilities in order to ensure that electric demand was met using an efficient, reasonably priced mix of fuel resources.

Q. IN ADDITION TO THE PLANNING AND APPROVAL PROCESSES YOU HAVE DISCUSSED, ARE THERE ANY OTHER METHODS THIS COMMISSION COULD USE TO EVALUATE THE OVERALL SUCCESS OF ITS ELECTRIC RESOURCE PLANNING, INCLUDING THE DIVERSITY OF ITS RESOURCE MIX?

A. In addition to these filings, there are numerous publicly available documents the Commission can reference to compare the generation fuel and technology mix in South Carolina as compared to other states. Such a comparison is subjective at best and must be tempered by certain realities found in various states. For example, natural resources, geography, and public policy differ from state to state and will impact the appropriateness of generation resource fuel sources in a given state. However, an indirect but not unreasonable test of whether South Carolina has a reasonable level of generation fuel source and technology diversity could be found in a comparison of the State's electric rates to other states. As shown in the table below, for at least the last 15 plus years, South Carolina has had average electric rates below the national average. Because electric rates are based on costs, which are primarily generation and fuel related, such a comparison provides comfort that in terms of cost, resource mix, and generation efficiency, the historical operation and generation fuel mix in South Carolina have been favorable, in that it has provided the State's electric customers with reliable, low cost electricity – which is in fact the overriding public policy of the State.



EIA Form 861s and its reference is http://www.eia.doe.gov/cneaf/electricity/epa/average_price_state.xls

Q. FROM YOUR PERSPECTIVE, DO THE UTILITIES HAVE A DIVERSE RANGE OF GENERATING FUEL RESOURCES?

A. Yes. This opinion is based on this Commission's historical focus and policies with respect to maintaining a diverse generation fuel mix.

Q. WHAT IS YOUR RECOMMENDATION WITH REGARD TO WHETHER OR NOT THIS COMMISSION SHOULD ADOPT THE FUEL SOURCE STANDARDS PROPOSED BY EPA 2005?

A. I believe the adoption of this standard in South Carolina is unnecessary. As I have shown in my testimony on this issue, the State and this Commission have adopted policies and rules that promote the goal of having a diverse mix of fuel and generation technology. Therefore, I believe the Commission should find that the State and these utilities have for some period of time been operating with a goal of a diverse generation mix and have not relied upon any one dominate generation fuel source. I would also recommend that because of these prior and ongoing initiatives that the Commission decline to adopt this EPA 2005 fuel diversity standard.

IV. GENERATION EFFICIENCY

Q. WHAT IS BEING REQUIRED OF STATE REGULATORS WITH RESPECT TO THE ISSUE OF GENERATION EFFICIENCY?

A. Specifically, this EPA 2005 proposed amendment to PURPA Section 1251(13) (Exhibit JAW-2) specifies that "Each electric utility shall develop and implement a 10-year plan to increase the efficiency of its fossil fuel generation."

Q. WHAT IS THE POLICY OF THIS STATE WITH RESPECT TO PLANNING AND GENERATION PLANT EFFICIENCY?

A. As I discussed earlier, § 58-33-430 requires the Companies to file an annual plan with a ten-year forecast of the demand and the energy resources each Company is proposing to meet that forecast demand. This is usually filed in conjunction with an IRP required by § 58-37-40 which requires that electric utilities file a fifteen year plan. Further, § 58-37-10(2) indicates that this plan must include the electric utilities' plans for meeting their future energy demand "in an economic and reliable manner, including both demand-side [which is defined to include cogeneration and renewable energy resources] and supply-side options." Finally, Section § 58-33-160, a statute dealing with the requirements for the Commission to issue a Siting Certificate for a new generating facility, lists one of the requirements that the facility "will serve the interests of system economy and reliability." These statutes indicate that the State's policy in generation planning includes a long-term, ten plus year planning horizon that must consider a generation resource mix that is diverse, economical, reliable, and efficient.

Q. HOW DOES THE COMMISSION ADHERE TO THESE PLANNING POLICIES REQUIRED BY SOUTH CAROLINA LAW?

A. First, as indicated above, this Commission must issue a Siting Certificate for each new generating facility proposed by the Companies. In issuing this Siting Certificate the Commission must find that the new facility "will serve the interests of system economy and reliability." Second, the Commission requires these Companies to file an annual IRP, which contains an annual plan. This IRP is a long-term, fifteen year planning document that includes information about new energy resources and this Commission has stated in its IRP rules that a plan must meet "the requirements shown in its forecast in an economic and reliable manner" (Docket No. 87-223-E, Order No. 98-502, July 2, 1998). These two examples clearly indicate this State and this Commission require these Companies to develop long-term energy resource plans, and that economic efficiency is a goal of this planning process.

Q. ARE THERE ANY OTHER ACTIONS OF THIS COMMISSION CONCERNED WITH MONITORING FOSSIL GENERATION EFFICENCY?

A. Yes. § 58-27-865(B) requires the Commission and the ORS to annually review each of the Company's fuel costs for the year. In the annual review the Commission is instructed in section (F) of this statute to "disallow recovery of any fuel costs that it finds without just cause to be the result of failure of the utility to make every reasonable effort to minimize fuel costs or any decision of the utility resulting in unreasonable fuel costs, giving due regard to reliability of service, economical generation mix, generating experience of comparable facilities, and minimization of the total cost of providing service." In addition, section (C) of that same statute says that the "commission shall direct the electrical utilities to submit to the Office of Regulatory Staff monthly reports of fuel costs and monthly reports of all scheduled and unscheduled outages of generating units with a capacity of one hundred megawatts or greater." These monthly reports also include some operating performance data on all major baseload generating units. The combination of reviewing these annual fuel costs and monthly generation operation reports indicates there is an ongoing effort by both this Commission and the ORS to monitor generation performance and efficiency. In addition to the monthly reports, the Companies provide more detailed data to the ORS as a part of the ORS' comprehensive annual review of fuel costs, which includes a thorough review of each Companies' generating units' performance.

Q. WHAT OTHER ACTIVITIES ARE UNDERWAY THAT HAVE THE OBJECTIVE OF INCREASING THE COMPANIES FOSSIL GENERATING PLANT EFFICIENCIES?

A. There is a significant amount of ongoing activity in each utility that promotes, indeed requires, their engineers, plant managers, and plant operators to continually seek to improve operational efficiencies. The type of improvements often undertaken on a unit specific basis include feedwater heater replacements, turbine blade replacements, mitigation of air compliance impacts, improved system monitoring and operations, and condenser modifications.

Furthermore, in discussions with SCE&G, Progress and Duke, these Companies identified several engineering groups that are directly responsible for monitoring and improving generator plant performance and whose job performance review is tied to this activity. At Progress, these groups include individual plant operating and maintenance management and staff, and the Strategic Engineering group, which includes Strategic Engineers, Performance Engineers, and Combustion Engineers. The responsibilities of these groups and individuals include identifying and evaluating new and innovative technologies that can improve plant efficiency; monitoring performance and identifying opportunities for improvement; and monitoring and improving combustion performance. All these activities directly relate to plant efficiency. At SCE&G, the capital budgeting process always has improving generation plant capacity factors and availability as budgeting priorities. In addition, Plant Managers, General Managers of Operations, Operations Engineers, and technical services support personnel all have an ongoing responsibility to improve generation plant performance. At Duke there are also a number of groups and individuals tasked with monitoring and upgrading fossil generation efficiency. Groups include the Plant Technical Team, various Plant Project Teams, Plant Operations, and Plant Maintenance. Individual titles of engineers assigned to tasks related to fossil efficiency improvements include Technical System Manager II, Technical Manager, Supervising Station Engineer, Senior Engineers, and others.

Q. ARE THERE ANY CONSTRAINTS OR LIMITATIONS THAT MUST BE CONSIDERED AS THE COMPANIES AND THIS COMMISSION CONSIDER GENERATION EFFICIENCY UPGRADES?

A. Yes. There are a variety of considerations and constraints that impact the efficiency of the Companies fossil generation fleet. Factors and circumstances, such as environmental compliance, which generally tends to decrease efficiency, fuel transportation issues, and seasonal operating constraints can all have a significant impact on generating plant performance and plans for efficiency upgrades.

Q. FROM YOUR PERSPECTIVE, IS THERE ANY OTHER MEANS FOR THIS COMMISSION TO EVALUATE THE CURRENT AND EXPECTED FUTURE EFFICIENCY OF THESE COMPANIES' FOSSIL GENERATION FLEET?

A. As discussed in the Section above on fuel diversity, an indirect but not unreasonable test of whether South Carolina has an efficient fossil generation fleet and ongoing plans to increase this efficiency, is effectively reflected in a comparison of the State's electric rates to other states. As shown in the table in the preceding section, for at least the last decade and a half average electric rates in the State have been below the national average. Because these electric rates are based on costs, which are primarily related to generation costs and efficiency, such a comparison provides comfort that the historical operation of the State's fossil generation fleet has been efficient and that these utilities and this Commission can be expected to continue to promote improvements to increase this efficiency.

Q. WHAT IS YOUR RECOMMENDATION WITH REGARD TO WHETHER OR NOT THIS COMMISSION SHOULD ADOPT THE FOSSIL GENERATION EFFICIENCY STANDARD PROPOSED BY EPA 2005?

A. As with the fuel diversity standard, I believe the adoption of the fossil fired generation efficiency planning standard is unnecessary in South Carolina. As I have shown in my testimony on this issue, the State and this Commission have adopted and for many years been operating with a ten year plus planning cycle that promotes the goal of continual improvements in generation efficiency. Furthermore, this Commission, the ORS, and the

Companies' employees, all have ongoing efforts to monitor and improve the operating efficiencies of the generation fleet. Therefore, I would recommend the Commission find that the State and these Companies, for some period of time, have been operating with an annual ten year planning horizon and fossil generation efficiency objectives at least comparable, if not more comprehensive, to what is being proposed by EPA 2005. I would also recommend, because of these prior and ongoing initiatives that the Commission decline to adopt this EPA 2005 fossil generation efficiency standard.

V. NET METERING

Q. PLEASE EXPLAIN HOW EPA 2005 ADDRESSED THE ISSUE OF NET METERING.

A. EPA 2005, Section 1251 (11), (see Exhibit JAW-2) requires that state regulators undertake a proceeding to consider whether or not to adopt the following net metering standard which amended Section 111(d) of PURPA by adding at the end:

> *"NET METERING - Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term 'net metering service' means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution*

facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period."

Summarizing, the proposed standard requires that each electric utility make available net metering service upon a request from any customer with an eligible on-site generating facility.

Q. PLEASE DESCRIBE IN MORE DETAIL WHAT NET METERING MEANS.

A. "Net-metering" is essentially a simplified method of metering the net energy consumed and produced at a home or business that has its own qualifying generation facility. Under existing federal law (PURPA, Section 210), utility customers can use electricity generated by a qualifying facility ("QF") to displace the electricity they would otherwise purchase from their electric utility. If the customer produces any excess electricity (beyond what is needed to meet the customer's own needs) the utility purchases that excess electricity at the utility's avoided cost rates. The excess energy is usually metered using an additional meter which is installed at the customer's expense. Net metering simplifies this arrangement by allowing the customer to net any excess electricity against electricity used at other times. The billing period for net metering may be either monthly or annually. As I will explain in more detail later in my testimony, the most important issue with regard to net metering is the amount of the credit the customer receives for the excess generation. The credit should not be equal to the utility's retail electric rate because that rate includes much more than generation costs. Also, the credit must reflect the time of day the generation is produced.

Q. PLEASE DESCRIBE A QUALIFYING FACILITY.

A. A QF is a generating facility which meets the requirements for QF status established under PURPA part 292 (found in JAW Exhibt-4) of the FERC's regulations, and which has obtained certification of its QF status. There are two types of QFs: cogeneration facilities and small power production facilities. A cogeneration facility is a generating facility that produces electricity and another form of energy (such as heat or steam) used for industrial, commercial, residential or institutional purposes, and otherwise meets the requirements of 18 C.F.R. §§ 292.203(b) and 292.205 (found in JAW Exhibit-4) for operation, efficiency and use of energy output. A small power production facility is a generating facility whose primary energy source is renewable (hydro, wind, solar, etc.), biomass, waste, or geothermal resources, and that otherwise meets the requirements of 18 C.F.R. §§ 292.203(a), 292.203(c) and 292.204.

Q. ARE THERE USUALLY LIMITS PLACED ON QUALIFYING FACILITIES THAT MAY BE NET METERED?

A. Yes, in most cases where states have adopted a net metering tariff there are both technology and size limitations placed on net metered facilities.

Q. WHY SHOULD STATES ADOPT SIZE LIMITATIONS ON NET METERED GENERATION FACILITIES?

A. One major reason to adopt net metering size restrictions is based on the reliability of net metered generation as compared to a utility's traditional generating units. For example, most net metered applications are not capable of controlling with any degree of predictability when they will run (such as photovoltaics or wind). Therefore, they simply cannot be counted on to be available on a twenty four hour a day, seven day a week basis. Having a large amount of unpredictable generation resources on a utility's system will increase costs (because the utility must backstand the unpredictable net metered generation) and could harm reliability. Another reason to adopt size restrictions is the size of the generation should be comparable to the customer's own on-site load. In other words, the generation should not be oversized to allow the net metering customer to essentially be an unregistered, unregulated merchant generator. An additional reason to limit the size is to limit the potential subsidization by the utility's other ratepayers. To limit these subsidies, regulators in most states that have adopted net metering have adopted both size and technology limitations.

Q. PLEASE DISCUSS THE APPROPRIATE CREDIT TO BE APPLIED TO NET METERING CUSTOMERS AND HOW THIS LIMITS SUBSIDIZATION OF NET METERERS BY OTHER CUSTOMERS.

A. A net metering customer often furnishes electricity to the utility in off-peak hours while it uses electricity from the utility in the on-peak hours. The net metering model adopted by this Commission should not treat these electricity exchanges as being of equal value. The on-peak electricity costs more to produce than the off-peak electricity. Consequently, the utility should not be required to pay the net metered customers a high price (such as on-peak power rates) for off-peak produced, low value power. To do otherwise results in the utility and its ratepayers paying the net metered customer a subsidy for the electricity that the net metering customer produces.

A second cost issue, mentioned earlier in my testimony, relates to the fact that a net metering customer, by virtue of exchanging electricity on a kWh for kWh basis, could escape paying its appropriate share of the total system costs incurred to serve it. Specifically, if the net metering customer is given a credit equal to the utility's retail rate it is essentially receiving a discount on its share of the distribution, transmission, back office support, and similar system-wide costs, meaning that other ratepayers must subsidize the net metering customer with respect to these basic facilities costs. Another cost concern is related to the fact that a utility must be prepared to provide standby service for all of its customers, including net metered customers. This standby service is a cost to the utility and its ratepayers, however, net metering customers could escape paying for this service and thus be subsidized by other ratepayers absent sufficient tariff protections.

Q. WHAT TARIFF PROTECTIONS ARE NECESSARY TO PROTECT AGAINST THE COST SUBSIDIZATION ISSUES YOU MENTIONED ABOVE?

A. There are at least three tariff provisions that are essential to minimizing some of the cross subsidy concerns. First, the tariff should have some type of demand charge or facility charge to help ensure that net metering customers pay a reasonable share of the fixed asset costs of serving them, including transmission and distribution facilities costs. Absent a demand charge these costs would be shifted to other ratepayers. Second, a tariff must differentiate between the value of on-peak and off-peak power. Both of these issues can be reasonably addressed by an appropriately designed time-of-use tariff under which net metered customers would be required to participate. Such a tariff would include a time-of-use based demand rate, a time-of-use based energy rate, and a basic facilities charge. This type of rate design attempts to recapture from net metering customers a share of the basic facilities costs and attempts to properly account for the difference in the value of on-peak and off-peak electricity. The time-of-use demand rate also attempts to recapture some of the costs associated with the utility providing standby service for the net metered customers. A third restriction would be to limit the size and total capacity of net metered units.

Q. IF THE COMMISSION ADOPTS NET METERING, SHOULD IT ADOPT TARIFFS WITH THESE PROTECTIONS?

A. Yes.

Q. WHAT ARE THE POTENTIAL BENEFITS OF NET METERING?

A. The primary benefit is the support and encouragement of non-utility electric providers, particularly renewable energy. In so doing, the adoption of a net metering program supports both renewable energy with its related environmental benefits as well as fuel diversity. To the extent these are the goals of the state and this Commission, the adoption of a net metering program with an appropriately designed tariff option would lend active support to those goals.

Q. HAVE OTHER STATES ADOPTED NET METERING STANDARDS?

A. Yes, depending on which study or survey one examines, upwards of forty states have adopted a net metering standard or tariff

Q. HAVE OTHER STATES PLACED LIMITATIONS ON THEIR NET METERING TARIFFS?

A. Yes. My review indicates that most states placed a size limit ranging from 10kw-30kw for net metering residential customers, and 100kw or less for commercial systems. In addition, the eligible technologies are limited to renewables, sometimes limited to just photovoltaic and wind, with other states including solar thermal, small hydro, and a variety of other renewables. My review also indicates approximately two-thirds of the states with net metering tariffs also placed limits on the total capacity of net metering allowed. As one might expect, states with a deregulated retail electric marketplace tended to be less restrictive in their net metering rules.

Q. ARE THERE ANY OTHER PROTECTIONS RELATED TO NET METERING THAT THIS COMMISSION SHOULD ADOPT?

A. Yes, I would recommend that the Commission specify that any renewable energy credits, often called green tags, associated with excess energy production realized any time an accumulation of excess generation credits are zeroed out for the net metered customer, be the property of and granted to the utility. To the extent these may have some future value it will help offset some of the net metering costs paid for by other customers.

Q. IF THE COMMISSION DECIDES TO ADOPT NET METERING, WHAT TYPE OF NET METERING STANDARD ARE YOU PROPOSING FOR THIS COMMISSION TO APPROVE FOR SOUTH CAROLINA?

A. I would propose a standard very similar to the one recently adopted in North Carolina and presented in the testimony of Duke witness Yarborough and Progress witness Evans.

This standard restricts the size of the net metered facility to 20 kw for residential customers and 100 kw for a non-residential. It also restricts the total net metered capacity to no more than 0.2% of each Company's retail peak load. I would also restrict the technology to solar photovoltaic, wind, micro-hydroelectric, and biomass fueled facilities.

As the table below illustrates, this standard is fairly comparable to the net metering rules adopted in our neighboring Southeastern states.

STATE	TECHNOLOGIES ALLOWED*	RESIDENTIAL SIZE LIMIT	COMMERCIAL SIZE LIMIT	OVERALL ENROLLMENT LIMIT**
North Carolina	**PV, W, LG, B, SH**	**20 kw**	**100 kw**	**0.2 % of peak**
Georgia	PV, W, FC	10 kw	100 kw	0.2% of peak
Florida (JEA)	PV, W	10 kw	None	None
Alabama	None			
Mississippi	None			
Louisiana	PV, W, B, SH, FC, G, MT	25 kw	100 kw	None
Kentucky	PV	15 kw	15 kw	0.1 % of peak
Arkansas	PV, W, B, SH, G, FC, ST, MT	25 kw	100kw	none

* PV = phtovoltaics, W=wind, FC= fuel cells, LG = landfill gas, B = biomass, SH = small hydro, G = geothermal, MT = microturbines, ST = solar thermal

** This is based on each supplier's retail load peak, not the state as a whole

Q. WHAT ARE THE BENFITS OF THIS PROPOSED NET METERING STANDARD FOR THE STATE AND ITS ELECTRIC CONSUMERS?

A. In adopting the proposed net metering rule the Commission is actively promoting small renewable resources to be further developed in South Carolina along with any positive environmental benefits and an increase in fuel diversity. In addition, by adopting standards comparable to our neighboring Southeastern states renewable suppliers will have just as much incentive to promote their systems in South Carolina as in other Southeastern states. Also, adopting a net metering policy identical to that in North Carolina will facilitate administration of the policy for Duke and Progress, which serve customers in both states.

VI. CONCLUSION

Q. PLEASE SUMMARZIE YOUR FINDINGS AND YOUR RECOMMENDATIONS TO THIS COMMISSION.

A. In the main body of this testimony I have reviewed three proposed energy efficiency standards contained within EPA 2005 and requiring state regulatory action. My recommendations, which I summarize here, are in agreement with ORS witness Watts. The first proposed standard dealt with the requirement that electric utilities have a diverse mix of generation units in order to minimize reliance upon one fuel source. As I discussed in this testimony, it is the overall policy of the State and this Commission that Duke, SCE&G, and Progress maintain a diverse array of generation technologies and fuel mix. Moreover, this Commission has been actively involved in both the planning and final approval of electric generation resource needs. This planning and development process has resulted in all three Companies having a diverse generating fleet, with respect to both fuel and technology, and they do not have undue reliance upon one fuel source.

The second standard proposed that utilities develop a ten year plan to increase the efficiency of their fossil fuel generation. Similar to the fuel efficiency standard discussed above, as I show in this testimony, it has long been the policy of this State and this

Commission to conduct long range planning of at least ten years, including an ongoing effort to achieve maximum efficiency from all of the utilities' generating units. Moreover, the Companies have incentives to continue to search for increased efficiencies from their generating units and this Commission has ongoing activities to monitor generation unit efficiency and any planned upgrades.

With respect to these two generation efficiency standards, the policies of this State, along with the rules and various Orders of this Commission, have promulgated and support activities that meet and exceed these two proposed PURPA standards. Therefore, I believe the Commission should find that the State and its utilities have for some time been operating with generation efficiency standards at least comparable to what is being proposed. Based on this finding I would recommend that this Commission find that these two proposed generation efficiency standards are unnecessary and decline to adopt the standards.

The third proposed standard would require that utilities offer net metering. This proposal is aimed primarily at encouraging renewable generation. With respect to this issue I have recommended that, if the Commission elects to adopt net metering, the Commission should adopt a net metering rule with the same restrictions and parameters as the one recently adopted in North Carolina.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

EXHIBIT JAW-1

Julius A. "Chip" Wright is the President of J. A. Wright and Associates, 3037 Loridan Way, Atlanta, GA, 30339; 770-956-1225; jawright@mindspring.com.

Experience Overview

Prior to starting his firm, Dr. Wright was a Client Partner for AT&T Solutions Utilities and Energy Practice and before that a Principal in EDS' Management Consulting Services. Dr. Wright has been consulting electric gas, and telephone utilities on regulation, economics, rates, production modeling and strategic planning for the past three years. Prior to this Dr. Wright served an eight-year term as a Utility Commissioner for the state of North Carolina. Prior to that he served three terms in the North Carolina State Senate while he was a senior project engineer for Corning Glass Works on their optical wave guide project in Wilmington, North Carolina. He has a total of 14 years' government-related experience, 12 years' plant-related engineering experience, and he has established two companies.

While serving on the North Carolina Utility Commission, he served four years on the National Association of Regulatory Utility Commissioners (NARUC) Electricity Committee. He has served in various other advisory capacities, including the Keystone Committee on Externalities; the North Carolina Radiation Protection Committee, and on an Oversight Committee for a joint North Carolina/New York/ Department of Energy (DOE) project.

Dr. Wright has also served on the Southern States Energy Board Task Force on Restructuring the Electric Utility Industry.

Electric Competition Natural Gas, and Regulatory Strategy

- *"Energy Deregulation,"* March 2001, report of the California State Auditor on the causes of the problems related to high electric prices and blackouts (from May, 2000 through June 2001, and ongoing) in California's restructured electric marketplace. Dr. Wright was one of three consultants who essentially researched and prepared the State Auditor's report.
- Principal author with Dr. Al Danielsen of *"Reliability of Electric Supply In Georgia,"* published by The Bonbright Utilities Center, University of Georgia, June, 2001.
- Presented testimony before the North Carolina Public Utilities Commission on behalf of SCANA Corporation regarding issues related to market power in its merger with Public Service Company of North Carolina, Docket No. G-5, Sub 400; G-3, Sub 0.
- Was the principal author of a report and investigation titled *"An Analysis of Commonwealth Edison's Planning Process For Achieving Reliability of Supply,"* which was an investigation of the Company's planning process to meet its statutory obligation for supplying electricity as Illinois transitions to a competitive retail electric market, Illinois Commerce Commission Docket No. 98-0514.

- Co-authored a national study that used computer modeling techniques to quantify the impact of electric competition on the aggregate economy in each of the 48 continental United States.

- Presented testimony to Louisiana Legislative Committee on behalf of Entergy Corporation regarding the various regulatory and technical issues that need to be addressed in the transition to competition.

- Presented testimony For Virginia Power with regard to its transition to competition plan.

- Testified before the Mississippi Public Service Commission on issues related to the establishment of retail electric competition, including ISO establishment, regional power exchanges, legislation, taxes and regulatory polices.

- Presented testimony for Entergy Corp. in both Louisiana and Arkansas in support of its transition to competition filing.

- Worked with three major southeastern utilities on developing business and regulatory strategy as they prepare for competition.

- Filed a report with the South Carolina Legislature that studied the impact of electric competition on the state of South Carolina.

- Was a panelist on a Southern Gas Association national televised forum on performance based regulation for the natural gas industry.

- Was the lead policy witness for South Carolina Electric and Gas on obtaining regulatory approval to transfer depreciation reserve from a nuclear plant to T&D depreciation reserve. This is a critical issue in preparing for competition and limiting stranded investment.

- Developed regulatory and marketing strategy for ENTERGY with regard to its telecommunications initiatives. In these efforts he worked with the EDS Telecommunications Consulting Group.

- Led an analysis of the prudence of Central Vermont Public Service Company's power and resource acquisitions over a five year period. The prudence of this utility's power supply strategy was under investigation in a rate case proceeding. Dr. Wright's team filed testimony supporting the Company and their efforts were instrumental in undermining the charges of imprudence brought by the Company's opposition.

- Developed an EDS intra-company task force to address the issues related to FERC's Transmission NOPR. This task force subsequently filed three responses to FERC's Open Access NOPR which provide a basis for EDS to maintain a leadership position as the electric utility industry undergoes restructuring to a competitive market.

- Helped develop a regulatory strategy and presented testimony on behalf of South Carolina Pipeline. In this case, an economic analysis prepared by Dr. Wright and Dr. Frank Cronin (from EDS Economic Planning and Analysis Consulting Group) was presented along with recommendations. Their analysis and recommendations were generally accepted by the Commission staff.

Resource Planning & Economic Analysis

As a Commissioner he has been involved in a variety of resource planning issues including chairing the last North Carolina Resource Planning hearing that involved Duke Power Company, Carolina Power and Light, Virginia Power Company and the North Carolina Electric Membership Corporation.

He was also selected by the states of North Carolina and New York and the Department of Energy to be one of five representatives on a peer review panel overseeing a Resource Planning project being conducted by the Oak Ridge National Laboratories.

In addition to these initiatives Dr. Wright has:

- Was the principal author of a report and investigation titled "*An Analysis of Commonwealth Edison's Planning Process For Achieving Reliability of Supply,*" which was an investigation of the Company's planning process to meet its statutory obligation for supplying electricity as Illinois transitions to a competitive retail electric market, Illinois Commerce Commission Docket No. 98-0514.

- Was the lead policy witness for South Carolina Electric and Gas on obtaining regulatory approval to transfer depreciation reserve from a nuclear plant to T&D depreciation reserve. This is a critical issue in preparing for competition and limiting stranded investment.

- Was instrumental in acquiring a large engagement for a major southeastern utility examining their competitive position as it relates to a competitive electric market. During the engagement he provided input and guidance on regulatory issues related to the deregulation of the electric industry.

- Assisted Carolina Power and Light Company in their integrated resource planning process by advising and facilitating a Commission directed public policy panel.

- Developed an overview of Niagara Mohawk Gas' integrated resource planning efforts. This engagement was under a contract from Oak Ridge National Laboratories.

Cost of Service, Rate Design, Forecasting

While serving more than eight years on the North Carolina Commission, Dr. Wright was involved in several cost of service and rate design analyses, testimonies, and orders. This included work in electric, telephone, gas, and water utilities. Additionally, he has presented testimony on performance based ratemaking and he has been involved in analyzing electric utility forecasting models, including end-use models, regression analysis (both linear and nonlinear) and customer discrete choice modeling forecasts. Furthermore, Dr. Wright's Ph.D. is in environmental and regulatory economics with special research into nonlinear minimal cost optimization procedures for electric utility production models. This work included optimizing investments, optimal regulatory regimes, pricing, cost recovery, and rate of return issues.

In addition, he has:

- Provided an economic analysis of the proper regulatory regime for South Carolina Pipeline Company. In this analysis he presented testimony supporting performance based rate making and his recommendations were generally accepted by the Commission staff.
- Developed forecasted rates for two New York state utilities. These rates were developed to support a bond filing by a cogenerator.
- Provided a forecast of power payments from New York State Electric and Gas (NYSEG) to two independent power producers (IPPs). This forecast was used to estimate the level of overpayments by NYSEG to these IPPs, under PURPA regulations, which he used in a filing before FERC supporting the company's claim of unlawful overpayments.

Telecommunications

As a Commissioner he has regulated all types of telecommunications providers for eight years. In addition, he has worked with two electric utilities in strategy formulation in regard to their entering the telecommunications business. Furthermore, he has eight years experience as a fiber optic engineer.

Other Areas of Expertise

Prior to joining EDS, he worked for eight years as a senior process engineer for Corning Glass in the design and production of optical waveguides (or fiber optics). Prior to that he worked for four years in the chemical industry as a process chemist and later as a senior project engineer. He has done work in environmental monitoring, process and product improvement, plant utilization, as well as starting and selling two successful companies - one in the financial leasing business and the other in the entertainment industry.

Presentations and Publications

"*Energy Deregulation*," March 2001, report of the California State Auditor on the causes of the problems related to high electric prices and blackouts (from May, 2000 through June 2001, and ongoing) in California's restructured electric marketplace. Dr. Wright was one of three consultants who essentially researched and prepared the State Auditor's report.

"Low Cost States and Electric Restructuring - The Issue is the Price!" presented to the1999 Miller Forum on Government, Business and the Economy, University of Southern California, April 19, 1999.

An Analysis of Commonwealth Edison's Planning Process For Achieving Reliability of Supply, Illinois Commerce Commission Docket No. 98-0514.

The Impact of Competition on the Price of Electricity, author, published by L. A. Wright and Associates, November, 1998.

"Retail Competition in the Electric Industry: The Impact on Prices," presented at the 18th Annual Bonbright Center Energy Conference, Atlanta, Georgia, Sept. 10, 1998.

Potential Economic Impacts of Restructuring the Electric Utility Industry, co-author, published by the Small Business Survival Committee, Washington, DC, November, 1997.

"How Deregulation Will Affect Power Quality and Energy Management," presented at the Power Quality and Energy Management Conference co-sponsored by Entergy and EPRI, New Orleans, LA, Nov. 14, 1997.

"Deregulation of the Electric Industry," *Proceedings: National Business Energy Forum*, June 26, 1997, New Orleans, LA.

"A Different View of the Market," presented at the Southeastern Electric Exchange Conference, June 25, 1997, Charlotte, N.C.

"Restructuring The Electric Utility Industry: Theory vs. Reality," presented at the American Bar Association Restructuring Conference, Raleigh, NC, Dec. 5, 1996.

"Restructuring: The Best Approach for Virginia," presented at the Virginia State Corporation Commission Electricity Restructuring Forum, Charlottesville, VA, Nov. 15, 1996.

"Alternative Rate Making for the Natural Gas Industry: State Issues," presented at the Tenth Annual NARUC Biennial Regulatory Information Conference, Columbus, Ohio, Sept. 12, 1996.

"RetailCo: To Regulate or Not?" presented at the 9th Annual Automatic Meter Reading Symposium, New Orleans, La., Sept. 10, 1996.

"Convergence: The Competitive Revolution Comes To Electric Power," presented to the Southeastern Association of Regulatory Commissioners Annual Convention, Point clear, Alabama, June 4,1996.

"Stranded Assets Recovery Issues," presented at the Western Electric Power Institute: Financial Forum, Tucson, Arizona, March 8, 1996.

"The Deregulation of the Electric Utility Industry : Current Status," presented at the North Carolina Economic Developers Association Midwinter Conference, Pinehurst, N.C., February 23, 1996.

"Performance Based Regulation for The Natural Gas Industry," panelist on Southern Gas Association's Televised Regulatory Forum, Dallas, Texas, Jan. 18, 1996.

"Industry Structure Should Meet Stakeholder Objectives," *Electric Light and Power*, Jan., 1996.

"Quantifying the Value of Stranded Investment: A Dynamic Modeling Approach," *Proceedings: Implementing Transmission Access and Power Transactions Conference*, Denver, Colorado, Dec. 14, 1995.

"Quantifying the Value of Stranded Investment: A Dynamic Modeling Approach," at the 15th Annual Bonbright Center Electric and Natural Gas Conference, October 9-11, 1995, Atlanta, Georgia.

Comments to FERC in the matter of Notice of Proposed Rulemaking on Open Access, Docket No. 95-9-000, 1995.

"The Road to Competition for Re-Regulated Industries," presented at the 1995 PROMOD users Forum, St. Petersburg, Florida, May 1, 1995.

"*Comparing New York State Electric and Gas Corporation's Non-Utility Generator Payments to Current Avoided Cost Rates*," report submitted in support of affidavit filed before FERC in Docket No. EL 95-28-000.

"A Solution To The Transmission Pricing and Stranded Investment Problems" *Public Utilities Fortnightly*, January 1995.

"Electric Utility Competition: The Winning Focus," presented at 1994 Southeastern Electric and Natural Gas Conference, Atlanta, Georgia, October 1994.

"*Gas Integrated Resource Planning: The Niagara Mohawk Experience*," for Martin Marietta Energy Systems, Inc., under contract to the United States Department of Energy, ORNL/SUB/93-03369.

"Future Regulation In the Water Industry - Can We Solve the Problems Before They Happen?" *Water*, Vol. 29, No. 2, pp. 14-17, Summer 1988.

"The Regulatory Process - Historical and Today," presented at Carolina Power and Light Company's IRP Public Participation Committee Seminar, June 1994.

"The Regulatory Role In DSM: Who Pays?" presented at Carolina Power and Light Company's IRP Public Participation Committee Seminar, June 1994.

"The Regulatory Process In North Carolina," North Carolina Telephone Association, June 1991.

Testimony

- Provided both Direct and Rebuttal Testimony for Duke Energy, Progress North Carolina, and Dominion Resources in their 2005 North Carolina Integrated Resource Planning Hearing, Docket No E100 Sub 103, June, 2006.

- Provided testimony for Georgia Power in its 2005 Fuel Adjustment Hearing on the issue of the appropriate pricing methodology for the dispatch and sale of electricity in the Southern Company system, Docket number 19142-U, April, 2005.

Presented testimony before the North Carolina Public Utilities Commission on behalf of SCANA Corporation regarding issues related to market power in its merger with Public Service Company of North Carolina, Docket No. G-5, Sub 400; G-3, Sub 0.

Presented testimony before the South Carolina Public Service Commission on behalf of South Carolina Pipeline Corporation regarding issues related to its annual review of gas costs as reflected in its purchase gas adjustment charge, Docket No. 1999-007-G, September, 1999.

Presented testimony before the Arkansas Public Service Commission on behalf of Entergy Arkansas, Inc. regarding regulatory policies related to the definition of public utilities as it impacts citing requirements of non-utility owned generating facilities, Dockets No. 98-337-U, March 9, 1999.

Presented Rebuttal and Surrebuttal testimony before the Louisiana Public Service Commission on behalf of Entergy Louisiana, Inc. and Entergy Gulf States regarding regulatory policies related to stranded cost recovery and on the issue of whether investors have been compensated for the risk of not recovering stranded costs, Dockets Nos. U-22092SC and U-20925, September, 1998.

Presented testimony to the South Carolina Public Utility Commission for South Carolina Pipeline Corp. related to acquisition adjustments and regulatory policies related to performance based regulation, Docket No. 90-588-G, June, 1998.

Testified before the Mississippi Public Service Commission on issues related to the establishment of retail electric competition, including ISO establishment, regional power exchanges, legislation, taxes and regulatory polices, April 16, 17, 1997.

Support of Transition Proposals filed by Virginia Power Corporation, March, 1997.

Entergy Arkansas testimony in support of Transition to Competition Filing, 1997.

Entergy Louisiana testimony in support of Transition to Competition Filing, 1997.

Support of Performance Based Regulation for GTE South Inc., Docket No. P-19, Sub 277, before the North Carolina Utility Commission, filed Nov. 22, 1995.

Stranded Cost Regulatory Policy and Recovery Testimony before the South Carolina Public Service Commission, the Commission approved the request Dr. Wright was advocating, Docket No. 95-1000-E, October 27,1995.

Performance based rate making mechanism and rate levels, testimony on behalf of South Carolina Pipeline Corporation, Docket No. 90-588-G, filed August 3, 1995.

Prudence Review of Power Resource Planning for Central Vermont Public Service Company, Docket No. 5724, September 7, 1994.

Rebuttal testimony on behalf of Central Vermont Public Service Company, Docket 5724, September 7, 1994.

Surrebuttal testimony on behalf of Central Vermont Public Service Company, Docket No. 5724, September 9, 1994.

Education

Dr. Wright received a Ph.D. in Economics from North Carolina State University, focusing on regulatory and environmental economics, and is a member of the honor society.

He received an MBA in finance from Georgia State University in 1978, graduating with honors.

He received a Master of Economics from North Carolina State University in 1991 and was a member of the honor society.

He received a B.S. in Chemistry from Valdosta State College in Valdosta, Georgia, graduating Magna Cum Laud.

In addition, he has completed the Michigan State University Regulatory Course, several other NARUC courses on regulation, been an instructor on regulatory issues at several NARUC courses, completed management courses at Corning Glass and financial seminars at Bank Boston and Merrill Lynch dealing with regulation.

EXHIBIT JAW-2

SEC. 1251. NET METERING AND ADDITIONAL STANDARDS.

(11) NET METERING - Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves. For purposes of this paragraph, the term `net metering service' means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.

"(12) FUEL SOURCES.-Each electric utility shall develop a plan to minimize dependence on 1 fuel source and to ensure that the electric energy it sells to consumers is generated using a divergent range of fuels and technologies, including renewable technologies.

"(13) FOSSIL FUEL GENERATION EFFICIENCY.-Each electric utility shall develop and implement a 10-year plan to increase the efficiency of its fossil fuel generation.".

(b) COMPLIANCE.-

(1) TIME LIMITATIONS.-Section 112(b) of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2622(b)) is amended by adding at the end the following:

"(3)(A) Not later than 2 years after the enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which it has ratemaking authority) and each nonregulated electric utility shall commence the consideration referred to in section 111, or set a hearing date for such consideration, with respect to each standard established by paragraphs (11) through (13) of section 111(d).

"(13) Not later than 3 years after the date of the enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which it has rate-making authority), and each nonregulated electric utility, shall complete the consideration, and shall make the determination, referred to in section 111 with respect to each standard established by paragraphs (11) through (13) of section 111(d).".

(2) FAILURE TO COMPLY.-Section 112(c) of the Public Utility Regulatory Policies Act of 1978 (16 U. S.C. 2622^(c)) is amended by adding at the end the following:

"In the case of each standard established by paragraphs (11) through (13) of section 111(d), the reference contained in this subsection to the date of enactment of this Act shall be deemed to be a reference to the date of enactment of such paragraphs (11) through (13).

(3) PRIOR STATE ACTIONS.-

(A) IN GENERAL.-Section 112 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2622) is amended by adding at the end the following:

"(d) PRIOR STATE ACTIONS.-Subsections (b) and (c) of this section shall not apply to the standards established by paragraphs (11) through (13) of section 111(d) in the case of any electric utility in a State if, before the enactment of this subsection -

"(1) the State has implemented for such utility the standard concerned (or a comparable standard);

"(2) the State regulatory authority for such State or relevant nonregulated electric utility has conducted a proceeding to consider implementation of the standard concerned (or a comparable standard) for such utility; or

"(3) the State legislature has voted on the implementation of such standard (or a comparable standard) for such utility.".

(B) CROSS REFERENCE.-Section 124 of such Act (16 U.S.C. 2634) is amended by adding the following at the end thereof. "In the case of each standard established by paragraphs (11) through (13) of section 111(d), the reference contained in this subsection to the date of enactment of this Act shall be deemed to be a reference to the date of enactment of such paragraphs (11) through (13).

SEC. 1252. SMART METERING.

(a) IN GENERAL.-Section 111(d) of the Public Utilities Regulatory Policies Act of 1978 (16 U.S.C. 2621 (d)) is amended by adding at the end the following:

"(14) TIME-BASED METERING AND COMMUNICATIONS.-

"(A) Not later than 18 months after the date of enactment of this paragraph, each electric utility shall offer each of its customer classes, and provide individual customers upon customer request, a time-based rate schedule under which the rate charged by the electric utility varies during different time periods and reflects the variance, if any, in the utility's costs of generating and purchasing electricity at the wholesale level. The time-based rate schedule shall enable the electric consumer to manage energy use and cost through advanced metering and communications technology.

"(B) The types of time-based rate schedules that may be offered under the schedule referred to in subparagraph (A) include, among others---

"(i) time-of-use pricing whereby electricity prices are set for a specific time period on an advance or forward basis, typically not changing more often than twice a year, based on the utility's cost of generating and/or purchasing such electricity at the wholesale level for the benefit of the consumer.

Prices paid for energy consumed during these periods shall be pre-established and known to consumers in advance of such consumption, allowing them to vary their demand and usage in response to such prices and manage their energy costs by shifting usage to a lower cost period or reducing their consumption overall;

"(ii) critical peak pricing whereby time-of-use prices are in effect except for certain peak days, when prices may reflect the costs of generating and/or purchasing electricity at the wholesale level and when consumers may receive additional discounts for reducing peak period energy consumption;

"(iii) real-time pricing whereby electricity prices are set for a specific time period on an advanced or forward basis, reflecting the utility's cost of generating and/or purchasing electricity at the wholesale level, and may change as often as hourly; and

"(iv) credits for consumers with large loads who enter into pre-established peak load reduction agreements that reduce a utility's planned capacity obligations.

"(C) Each electric utility subject to subparagraph (A) shall provide each customer requesting a time-based rate with a time-based meter capable of enabling the utility and customer to offer and receive such rate, specifically.

"(D) For purposes of implementing this paragraph, any reference contained in 8 shall be deemed to be a reference to the date of enactment of this paragraph.

"(E) In a State that permits third-party marketers to sell electric energy to retail electric consumers, such consumers shall be entitled to receive the same time-based metering and communications device and service as a retail electric consumer of the electric utility.

"(F) Notwithstanding subsections (b) and (c) of section 112, each State regulatory authority shall, not later than 18 months after the date of enactment of this paragraph conduct an investigation in accordance with section II 5(i) and issue a decision whether it is appropriate to implement the standards set out in subparagraphs (A) and (C).".

(b) STATE INVESTIGATION OF DEMAND RESPONSE AND TIME-BASED METERING.-Section 115 of the Public Utilities Regulatory Policies Act of 1978 (16 U.S.C. 2625) is amended as follows:

(1) By inserting in subsection (b) after the phrase "the standard for time-of-day rates established by section 111(d)(3)" the following: "and the standard for time-based metering and communications established by section 111(d)(14)".

(2) By inserting in subsection (^b) after the phrase "are likely to exceed the metering" the following: "and communications".

(3) By adding at the end the following:

"(i) TIME-BASED METERING AND COMMLTNICATIONS.-In making a determination with respect to the standard established by section 111 (d)(I 4), the investigation requirement of section 111(d)(14)(F) shall be as follows: Each State regulatory authority shall conduct an investigation and issue a decision whether or not it is appropriate for electric utilities to provide and install time-based meters and communications devices for each of their customers which enable such customers to participate in time-based pricing rate schedules and other demand response programs.".

(c) FEDERAL ASSISTANCE ON DEMAND RESPONSE.-Section 132(a) of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2642(a)) is amended by striking "and" at the end of paragraph (3), striking the period at the end of paragraph (4) and inserting "; and", and by adding the following at the end thereof: "(5) technologies, techniques, and rate-making methods related to advanced metering and communications and the use of these technologies, techniques and methods in demand response programs.".

(d) FEDERAL GUIDANCE - Section 132 of the Public, Utility Regulatory Policies Act of 1978 (I 6 U.S.C. 2642) is amended by adding the following at the end thereof:

"(d) DEMAND RESPONSE-The Secretary shall be responsible for-

"(1) educating consumers on the availability, advantages, and benefits of advanced metering and communications technologies, including the funding of demonstration or pilot projects;

"(2) working with States, utilities, other energy providers and advanced metering and communications experts to identify and address barriers to the adoption of demand response programs; and

"(3) not later than 180 days after the date of enactment of the Energy Policy Act of 2005, providing Congress with a report that identifies and quantifies the national benefits of demand response and makes a recommendation on achieving specific levels of such benefits by January 1, 2007.".

(e) DEMAND RESPONSE AND REGIONAL COORDINATION.-

(1) TN GENERAL - It is the policy of the United States to encourage States to coordinate, on a regional basis, State energy policies to provide reliable and affordable demand response services to the public.

(2) TECHNICAL ASSISTANCE.-The Secretary of Energy shall provide technical assistance to States and regional organizations formed by 2 or more States to assist them in-

(A) identifying the areas with the greatest demand response potential;

(B) identifying and resolving problems in transmission and distribution networks, including through the use of demand response;

(C) developing plans and programs to use demand response to respond to peak demand or emergency needs; and

(D) identifying specific measures consumers can take to participate in these demand response programs.

(3) REPORT - Not later than 1 year after the date of enactment of the Energy Policy Act of 2005, the Commission shall prepare and publish an annual report, by appropriate region, that assesses demand response resources, including those available from all consumer classes, and which identifies and reviews-

(A) saturation and penetration rate of advanced meters and communications technologies, devices and systems;

(B) existing demand response programs and time-based rate programs;

(C) the annual resource contribution of demand resources;

(D) the potential for demand response as a quantifiable, reliable resource for regional planning purposes;

(E) steps taken to ensure that, in regional transmission planning and operations, demand resources are provided equitable treatment as a quantifiable, reliable resource relative to the resource obligations of any load-serving entity, transmission provider, or transmitting party; and

(F) regulatory barriers to improved customer participation in demand response, peak reduction and critical period pricing programs.

(f) FEDERAL ENCOURAGEMENT OF DEMAND RESPONSE DEVICES.-It is the policy of the United States that time-based pricing and other forms of demand response, whereby electricity customers are provided with electricity price signals and the ability to benefit by responding to them, shall be encouraged, the deployment of such technology and devices that enable electricity customers to participate in such pricing and demand response systems shall be facilitated, and unnecessary barriers to demand response participation in energy, capacity and ancillary service markets shall be eliminated. It is further the policy of the United States that the benefits of such demand response that accrue to those not deploying such technology and devices, but who are part of the same regional electricity entity, shall be recognized.

(g) TIME LIMITATIONS.-Section 112(b) of the Public Utility Regulatory Policies Act of 1978 (16 U.S^.C. 2622(b)) is amended by adding at the end the following:

"(4)(A) Not later than 1 year after the enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which it has ratemaking authority) and each nonregulated electric utility shall commence the consideration referred to in section 111, or set a hearing date for such consideration, with respect to the standard established by paragraph (1 4) of section 111(d).

"(13) Not later than 2 years after the date of the enactment of this paragraph, each State regulatory authority (with respect to each electric utility for which it has ratemaking authority), and each nonregulated electric utility, shall complete the consideration, and shall make the determination, referred to in section 111 with respect to the standard established by paragraph (14) of section 111(d).".

(h) FAILURE TO COMPLY.-Section 112(c) of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2622(c)) is amended by adding at the end the following:
"In the case of the standard established by paragraph (14) of section 111(d), the reference contained in this subsection to the date of enactment of this Act shall be deemed to be a reference to the date of enactment of such paragraph (14). " ^-

(i) PRIOR STATE ACTIONS REGARDING SMART METERING STANDARDS.-
(1) IN GENERAL - Section 112 of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. 2622) is amended by adding at the end the following:

"(e) PRIOR STATE ACTIONS - Subsections (b) and (c) of this section shall not apply to the standard established by paragraph (14) of section 111(d) in the case of any electric utility in a State if, before the enactment of this subsection -

"(1) the State has implemented for such utility the standard concerned (or a comparable standard);

"(2) the State regulatory authority for such State or relevant nonregulated electric utility has conducted a proceeding to consider implementation of the standard concerned (or a comparable standard) for such utility within the previous 3 years; or

"(3) the State legislature has voted on the implementation of such standard (or a comparable standard) for such utility within the previous 3 years.".

(2) CROSS REFERENCE.-Section 124 of such Act (16 U.S.C. 2634) is amended by adding the following at the end thereof. "In the case of the standard established by paragraph (14) of section 111(d), the reference contained in this subsection to the date of enactment of this Act shall be deemed to be a reference to the date of enactment of such paragraph (14).".

EXHIBIT JAW-3

Subtitle B – Standards for Electric Utilities

16 U.S.C. § 2621. (PURPA SECTION 111) Consideration and determination respecting certain ratemaking standards

(a) Consideration and determination

Each State regulatory authority (with respect to each electric utility for which it has ratemaking authority) and each nonregulated electric utility shall consider each standard established by subsection (d) of this section and make a determination concerning whether or not it is appropriate to implement such standard to carry out the purposes of this chapter. For purposes of such consideration and determination in accordance with subsections (b) and (c) of this section, and for purposes of any review of such consideration and determination in any court in accordance with section 2633 of this title, the purposes of this chapter supplement otherwise applicable State law. Nothing in this subsection prohibits any State regulatory authority or nonregulated electric utility from making any determination that it is not appropriate to implement any such standard, pursuant to its authority under otherwise applicable State law.

(b) Procedural requirements for consideration and determination

(1) The consideration referred to in subsection (a) of this section shall be made after public notice and hearing. The determination referred to in subsection (a) of this section shall be—

(A) in writing,

(B) based upon findings included in such determination and upon the evidence presented at the hearing, and

(C) available to the public.

(2) Except as otherwise provided in paragraph (1), in the second sentence of section 2622 (a) of this title, and in sections 2631 and 2632 of this title, the procedures for the consideration and determination referred to in subsection (a) of this section shall be those established by the State regulatory authority or the nonregulated electric utility.

(c) Implementation

(1) The State regulatory authority (with respect to each electric utility for which it has ratemaking authority) or nonregulated electric utility may, to the extent consistent with otherwise applicable State law—

(A) implement any such standard determined under subsection (a) of this section to be appropriate to carry out the purposes of this chapter, or

(B) decline to implement any such standard.

(2) If a State regulatory authority (with respect to each electric utility for which it has ratemaking authority) or nonregulated electric utility declines to implement any standard established by subsection (d) of this section which is determined under subsection (a) of this section to be appropriate to carry out the purposes of this chapter, such authority or nonregulated electric utility shall state in writing the reasons therefore. Such statement of reasons shall be available to the public.

(3) If a State regulatory authority implements a standard established by subsection (d)(7) or (8) of this section, such authority shall—

(A) consider the impact that implementation of such standard would have on small businesses engaged in the design, sale, supply, installation or servicing of energy conservation, energy efficiency or other demand side management measures, and

(B) implement such standard so as to assure that utility actions would not provide such utilities with unfair competitive advantages over such small businesses.

JAW EXHIBIT -JAW -4

PART 292—REGULATIONS UNDER SECTIONS 201 AND 210 OF THE PUBLIC UTILITY REGULATORY POLICIES ACT OF 1978 WITH REGARD TO SMALL POWER PRODUCTION AND COGENERATION

Subpart B—Qualifying Cogeneration and Small Power Production Facilities

§ 292.203 General requirements for qualification.

(a) *Small power production facilities.* Except as provided in paragraph (c) of this section, a small power production facility is a qualifying facility if it:

(1) Meets the maximum size criteria specified in §292.204(a);

(2) Meets the fuel use criteria specified in §292.204(b); and

(3) Has filed with the Commission a notice of self-certification, pursuant to §292.207(a); or has filed with the Commission an application for Commission certification, pursuant to §292.207(b)(1), that has been granted.

(b) *Cogeneration facilities.* A cogeneration facility, including any diesel and dual-fuel cogeneration facility, is a qualifying facility if it:

(1) Meets any applicable operating and efficiency standards specified in §292.205(a) and (b); and

(2) Has filed with the Commission a notice of self-certification, pursuant to §292.207(a); or has filed with the Commission an application for Commission certification, pursuant to §292.207(b)(1), that has been granted.

(c) *Hydroelectric small power production facilities located at a new dam or diversion.* (1) A hydroelectric small power production facility that impounds or diverts the water of a natural watercourse by means of a new dam or diversion (as that term is defined in §292.202(p)) is a qualifying facility if it meets the requirements of:

(i) Paragraph (a) of this section; and

(ii) Section 292.208.

§ 292.204 Criteria for qualifying small power production facilities.

(a) *Size of the facility* —1) *Maximum size.* There is no size limitation for an eligible solar, wind, waste or facility, as defined by section 3(17)(E) of the Federal Power Act. For a non-eligible facility, the power production capacity for which qualification is sought, together with the power production capacity of any other non-eligible small power production facilities that use the same energy resource, are owned by the same person(s) or its affiliates, and are located at the same site, may not exceed 80 megawatts.

(2) *Method of calculation.* (i) For purposes of this paragraph, facilities are considered to be located at the same site as the facility for which qualification is sought if they are located within one mile of the facility for which qualification is sought and, for hydroelectric facilities, if they use water from the same impoundment for power generation.

(ii) For purposes of making the determination in clause (i), the distance between facilities shall be measured from the electrical generating equipment of a facility.

(3) *Waiver.* The Commission may modify the application of paragraph (a)(2) of this section, for good cause.

(b) *Fuel use.* (1)(i) The primary energy source of the facility must be biomass, waste, renewable resources, geothermal resources, or any combination thereof, and 75 percent or more of the total energy input must be from these sources.

(ii) Any primary energy source which, on the basis of its energy content, is 50 percent or more biomass shall be considered biomass.

(2) Use of oil, natural gas and coal by a facility, under section 3(17)(B) of the Federal Power Act, is limited to the minimum amounts of fuel required for ignition, startup, testing, flame stabilization, and control uses, and the minimum amounts of fuel required to alleviate or prevent unanticipated equipment outages, and emergencies, directly affecting the public health, safety, or welfare, which would result from electric power outages. Such fuel use may not, in the aggregate, exceed 25 percent of the total energy input of the facility during the 12-month period beginning with the date the facility first produces electric energy and any calendar year subsequent to the year in which the facility first produces electric energy.

§ 292.205 Criteria for qualifying cogeneration facilities.

(a) *Operating and efficiency standards for topping-cycle facilities* —(1) *Operating standard.* For any topping-cycle cogeneration facility, the useful thermal energy output of the facility must be no less than 5 percent of the total energy output during the 12-month period beginning with the date the facility first produces electric energy, and any calendar year subsequent to the year in which the facility first produces electric energy.

(2) *Efficiency standard.* (i) For any topping-cycle cogeneration facility for which any of the energy input is natural gas or oil, and the installation of which began on or after March 13, 1980, the useful power output of the facility plus one-half the useful thermal energy output, during the 12-month period beginning with the date the facility first produces electric energy, and any calendar year subsequent to the year in which the facility first produces electric energy, must:

(A) Subject to paragraph (a)(2)(i)(B) of this section be no less than 42.5 percent of the total energy input of natural gas and oil to the facility; or

(B) If the useful thermal energy output is less than 15 percent of the total energy output of the facility, be no less than 45 percent of the total energy input of natural gas and oil to the facility.

(ii) For any topping-cycle cogeneration facility not subject to paragraph (a)(2)(i) of this section there is no efficiency standard.

(b) *Efficiency standards for bottoming-cycle facilities.* (1) For any bottoming-cycle cogeneration facility for which any of the energy input as supplementary firing is natural gas or oil, and the installation of which began on or after March 13, 1980, the useful power output of the facility during the 12-month period beginning with the date the facility first produces electric energy, and any calendar year subsequent to the year in which the facility first produces electric energy must be no less than 45 percent of the energy input of natural gas and oil for supplementary firing.

(2) For any bottoming-cycle cogeneration facility not covered by paragraph (b)(1) of this section, there is no efficiency standard.

(c) *Waiver.* The Commission may waive any of the requirements of paragraphs (a) and (b) of this section upon a showing that the facility will produce significant energy savings.

(d) *Criteria for new cogeneration facilities.* Notwithstanding paragraphs (a) and (b) of this section, any cogeneration facility that was either not certified as a qualifying cogeneration facility on or before August 8, 2005, or that had not filed a notice of self-certification, self-recertification or an application for Commission certification or Commission recertification as a qualifying cogeneration facility under §292.207 of this chapter prior to February 2, 2006, and which is seeking to sell electric energy pursuant to section 210 of the Public Utility Regulatory Policies Act of 1978, 16 U.S.C. 824a–1, must also show:

(1) The thermal energy output of the cogeneration facility is used in a productive and beneficial manner; and

(2) The electrical, thermal, chemical and mechanical output of the cogeneration facility is used fundamentally for industrial, commercial, residential or institutional purposes and is not intended fundamentally for sale to an electric utility, taking into account technological, efficiency, economic, and variable thermal energy requirements, as well as state laws applicable to sales of electric energy from a qualifying facility to its host facility.

(3) Fundamental use test. For the purposes of satisfying paragraph (d)(2) of this section, the electrical, thermal, chemical and mechanical output of the cogeneration facility will be considered used fundamentally for industrial, commercial, or institutional purposes and not intended fundamentally for sale to an electric utility if at least 50 percent of the aggregate of such output, on an annual basis, is used for industrial, commercial, residential or institutional purposes. In addition, applicants for facilities that do not meet this safe harbor standard may present evidence to the Commission that the facilities should nevertheless be certified given state laws applicable to sales of electric energy or unique technological, efficiency, economic, and variable thermal energy requirements.

(4) For purposes of paragraphs (d)(1) and (d)(2) of this section, a new cogeneration facility of 5 MW or smaller will be presumed to satisfy the requirements of those paragraphs.

(5) For purposes of paragraph (d)(1) of this section, where a thermal host existed prior to the development of a new cogeneration facility whose thermal output will supplant the thermal source previously in use by the thermal host, the thermal output of such new cogeneration facility will be presumed to satisfy the requirements of paragraph (d)(1).